

MULTIMEDIA



UNIVERSITY

STUDENT ID NO

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# MULTIMEDIA UNIVERSITY

## FINAL EXAMINATION

TRIMESTER 1, 2018/2019

### TTP 3121 – TCP/IP PROGRAMMING

( All sections / Groups )

20 October 2018  
9.00 am – 11.00 am  
( 2 Hours )

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#### INSTRUCTIONS TO STUDENTS

1. This question paper consists of 4 printed pages (including cover page) with 5 questions only.
2. Attempt **ALL Questions**. All Questions carry equal marks (10 marks). The distribution of the marks for each question is given.
3. Please print all your answers in the answer booklet provided.

**QUESTION 1 [2+3+3+2 marks]**

- (a) List the responsible/usage of Address Resolution Protocol (ARP) protocol.
- (b) List **THREE** versions of open source BSD branch.
- (c) List **THREE** definitions for *process*.
- (d) List the objective for *lseek()* system call.

**QUESTION 2 [3+2+3+2 marks]**

- (a) Describe **THREE** statements on shells in Unix.
- (b) List **TWO** limitations of pipe.
- (c) Describe the functionalities of *arg* and *\*\*argv* as shown below.

```
int arg;
char **argv;
main (int arg, char **argv ) {

    int i;
    for ( i = 0; i<arg; i++) {
        printf("data %d : %s\n", i-1, argv[i]);
    }
    exit(0);
}
```

- (d) List the objectives for *select()* that used in I/O multiplexing.

**QUESTION 3 [3+2+3+2 marks]**

- (a) Identify the read/write/execute permission (in number format) for the figure below.

```
drwxr-xr-x 5 root root 4096 Dec 11 13:35 wordpress
[ved@localhost ~]$
```

- (b) Explain the following codes.

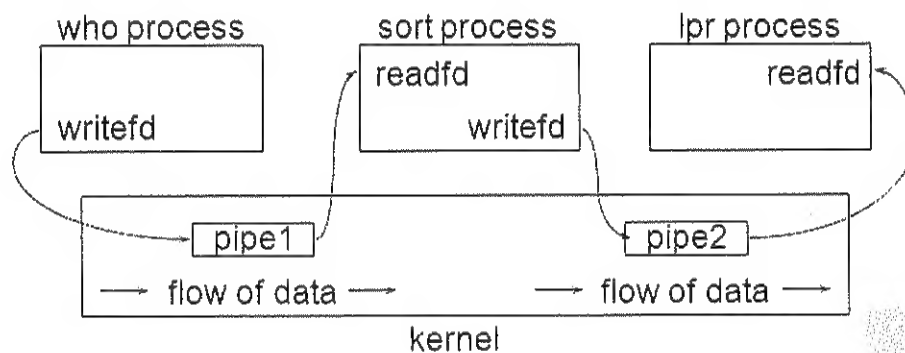
```
char *str1;
write(1, str, 11);
```

**Continued.....**

- (c) Use a diagram to illustrate Client and Server Stubs in principle of Remote Procedure Call (RPC) between a client and server program.
- (d) Identify the main difference between *poll()* and *select()* system call.

#### QUESTION 4 [5+3+2 marks]

- (a) Create a program to read a string from user. The input screen is appended to a file called "input.dat" (file is exclusive). Besides that, file permission should be set to read, write for owner, only execute for group and public. [Note: Use only system calls to complete this task]
- (b) Create a short program that create a one way for two processes to pass data.
- (c) Based on the diagram below, write the commands that been executed.



#### QUESTION 5 [5+3+2marks]

- (a) Create a TCP server program that returns client's IP address once the connection is established. *inet\_pton()* system call and *inet\_ntop()* system call must be used in your program. Header file (*inet.h*) is provided as in figure below. [Note: Use only system calls to complete this task]

```

/*inet.h*/
#include<stdio.h>
#include <stdlib.h>
#include<sys/types.h>
#include<sys/socket.h>
#include<netinet/in.h>
#include<arpa/inet.h>
#define SERV_TCP_PORT 25000
#define SERV_UDP_PORT 35001
#define CLI_UDP_PORT 35002
  
```

Continued.....

- (b) Develop short code to retrieve current byte on queue and current of messages on queue for a message queue.
- (c) Explain the outcome of the sample codes as shown below.

```
struct timeval tv;  
tv.tv_sec = 2;  
tv.tv_usec = 500000;  
select(STDIN+1, &read_fds, (fd_set *)0, (fd_set *)0, &tv);
```

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